

**ABSTRACT OF THE DISCLOSURE**

An ultra-wideband transmitter and receiver, and a ultra-wideband wireless communication method, which perform ultra-wideband wireless communication by a low-speed digital circuit having a low power consumption and controlling the effect of a multi-pass. In ultra-wideband transmitter, delay time controller generates and inputs a periodic pulse to a first matched filter, outputs the periodic pulse to a second matched filter when data to be transmitted are at a first level of a binary logic level, and outputs the periodic pulse to a third matched filter when the data to be transmitted are at a second level of the binary logic level. The first matched filter receives the periodic pulse from the delay time controller and outputs a reference signal for data determination. the second matched filter receives the periodic pulse from the delay time controller and outputs a first data signal earlier than the reference signal by a predetermined time. The third matched filter receives the periodic pulse from the delay time controller and for outputs a second data signal later than the reference signal by a predetermined time. An adder adds outputs of the first, second, and third matched filters to each other and outputs an added signal, and an antenna section receives the added signal from the adder and radiates the received added signal into the air.